IOP Guidelines and Procedures

(Draft)

NOTE: Infrastructure Reorganization. This document will appropriately updated when the reorganization has been completed.

Purpose

To establish a common set of guidelines and procedures for proposing, planning, executing, and closing out Intensive Operational Periods (IOPs). When the general policy below is not appropriate for a specific IOP or campaign, generally a collaborative effort, an individual IOP or campaign policy document will be prepared for that specific activity.

Definitions

Campaign: *Scheduled, collaborative field effort where an outside agency or program provides substantive resources toward the acquisition of a data set to meet a defined need.*

Cloud and Radiation Testbed (CART): *ARM's field sites, instruments, and data system are considered the integrated system known as the Cloud and Radiation Testbed.*

Collaborating Program: *A program joining with ARM to pursue a specific set of objectives by providing resources and participating in active planning and execution of the effort; could be a field effort such as a campaign, or other joint effort.*

Cooperating Program: *A program or agency supporting a specific ARM effort, such as an IOP, wherein ARM provides the resources.*

Intensive Operational Period (IOP): *A scheduled period of time when the frequency of observations is changed to augment CART routine observations or to satisfy a particular data requirement.*

Metadata: *Often described as "information or data about the data." Typically refers to information about primary data, which is usually numerical, or information describing aspects of the primary data. Such information could include, for example, instrument site information, environmental conditions under which the data were acquired, and any other data needed to understand the primary data.*

Near-Real Time: *When referred to in textual references, the ARM conception of "near-real time" is "with a few hours delay."*

Preliminary Data: *Data that have not necessarily been subjected to review, quality control and/or documentation by a responsible investigator. "Preliminary Data" are not considered publishable without the coordination and concurrence of the responsible investigator. Generally applicable only to IOP or campaign efforts where data sources beyond routine ARM data are being acquired.*

Quality Assured Data: *Typically the final form of data to be submitted to the ARM data system. Includes data stream description documentation, fully calibrated data in commonly used geophysical units, quality flagged data files and all ancillary data (metadata) needed by a future user of the data stream to make full sense of it.*

1 Introduction

While the ARM Program is designed to address a broad spectrum of data requirements through continuous observational data gathered from long-term Cloud and Radiation Testbed (CART) sites, IOPs are an integral part of ARM's operational paradigm. IOPs are scheduled intermittent periods of time when the frequency of observations is increased to augment routine observations to meet either scientific or technical objectives within the scope of ARM. These IOP require-

ments are embodied in the Scientific Mission Plan for the CART site and planned into the operations of the specific measurement location through a proposal, review, and approval process.

A wide range of complexity can exist for IOPs; therefore, some IOPs will require longer lead times and more interaction through the approval process than others. It is highly desirable that the procedures not only ensure successful coordination of large IOPs, but also allow rapid coordination for small, low impact IOPs. Large, complex IOPs, e.g., those requiring aircraft, usually will take a year or more to acquire resource commitments, and to plan, approve and implement the IOP itself.

IOPs are planned and executed through a formal approval and documented process. The major documents are

- Proposal
- Science Plan
- Questionnaire
- Reports

Responsibility for the preparation of documents lies with a variety of positions in the ARM Program. A summary by function of roles and responsibilities can be found in Appendix A.

1.1 Types of IOPs

There are fundamentally four classes of IOPs

- IOPs to support the scientific objectives of ARM Science Team Research Groups and the scientific/technical objectives for improving ARM instrumentation.

- IOPs in response to the request of a single investigator on the Science Team that are outside the scope of any of the existing research groups.

- IOPs in support of technical development by the Infrastructure, such as an instrument evaluation or confirming a data quality assessment algorithm.

- IOPs in response to requests for collaborative or cooperative field efforts by agencies or programs with interests similar or complementary to the scientific interests of ARM.

IOPs will vary widely in scope and complexity. Examples include launching radiosondes more frequently over a period time, using aircraft for cloud microphysical data and radiation measure-

ments as a function of altitude, and using additional instrumentation at a given site. More complex IOPs could involve coordinating observational programs with other programs and agencies. And, longer lead times will be required for more remote sites or complex IOPs.

1.2 Hypothesis Testing in IOPs

An IOP will have one of several possible objectives. Some will be technical in nature, designed, perhaps, to improve or evaluate the performance of a given instrument or value-added algorithm dependent on observational data; some will be based on "discovery," that is the acquisition of data to reveal correlations or behavior not recognized previously; and some will be based on the testing of a specific hypothesis. In the mid-life of ARM, it is believed, and advocated by advisory groups, that IOPs should largely focus on the latter objective, that is the testing of hypotheses. Thus the proposal and documentation for an IOP should be prepared to clearly state the hypothesis that the IOP is being designed to test and how it will be tested. IOPs designed for technical purposes or discovery will be clearly identified and described as such.

1.3 Planning and Execution of IOPs

The planning, execution, and reporting of an IOP can be a complex process with a lot of uncertainty. The following sections delineate each step of an IOP and the required documentation. Appendix E contains a checklist of each significant activity and can be used by IOP planners and participants to track the progress and the completion of required documents.

2 Steps in IOP Process

2.1 IOP Proposal and Approval Process

The IOP proposal/approval process is comprised of three steps: 1) the submission of an initial proposal, 2) a more formal and complete proposal submitted for "Approval" and funding commitment, and 3) a formal approval process.

2.1.1 Initial Proposal

***Initial Proposal Process*:** The initial proposal for an IOP can originate with anyone associated with the ARM program. It can be rather informal and of limited content. The proposal should be submitted either to the Chief Scientist or Technical Director.

The initial proposal should be submitted 12 to 24 months in advance of the proposed dates for the IOP for the concept to be considered by the appropriate Science Team working group and the Site Scientist for the proposed locale, and to ensure time for adequate coordination of proposed

activity. The initial proposal review will most likely involve the Chief Scientist, the Technical Director, the appropriate Site Scientist and the DSIT Science Applications Group (SAG).

Required Documentation: The initial proposal needs to address the scientific or technical driver for the IOP (e.g. is there a "hypothesis" or is it "discovery"), why it is important for ARM to support it, the measurements required, what routine data would be necessary to the IOP and what additional measurements (i.e. additional instruments) would be required. The last would also include identification of specific instruments, instrument platforms (i.e. aircraft) or other considerations that would be germane to understanding how the IOP would be executed and required resources for that strategy.

2.1.2 Final Proposal

Final Proposal Process: If considered an acceptable concept for an IOP, a SAG member will subsequently coordinate the effort to develop a final proposal for approval, typically no later than 12 months prior to the IOP.

Required Documentation: The final proposal should discuss the specific issues to be addressed by the IOP reducing the concept to a hypothesis-testing activity if that is appropriate. If not "hypothesis-based," justification will be developed as to the necessity for the IOP. Completing the final proposal may require several iterations.

Due to the circumstances surrounding a given proposed IOP, such as complexity or a less than clear relationship to ARM's priorities at the time, a minimum of a draft science plan may be required prior to approval. (See the section below for more guidance on science plans.) In most cases the content of the IOP proposal will be sufficient for approval and the Science Plan will be completed after the approval process.

2.1.3 Formal Approval

Formal Approval Process: All IOP proposals must be formally signed off and approved by the U.S. Department of Energy's Program Manager, the DOE Science Director, the ARM Chief Scientist and the ARM Technical Director. Once the signoffs have been completed, the Technical Director will proceed to allocate resources to the proposed IOP. To permit the placement of necessary contracts, the approval process should be completed no later than 6 months prior to the IOP.

Required Documentation: A formal DOE approval document will be signed off by individuals in those positions mentioned above. This may be either a signed cover sheet or a collection of email approvals.

2.2 IOP Planning and Operations Process

The next phase of the IOP process is the Planning and Execution Process.

2.2.1 Planning

Planning Process: Once an IOP has been approved, several important planning activities need to take place, including the updating of the Site Scientific Mission Plan, the development of a science plan, and the completion of an IOP questionnaire by all participants.

External coordination needed to acquire resources, data or the participation of a critical group outside of the ARM program will fall largely to the Site Program Manager and/or the Technical Director through contracting action.

Required Documentation: The required documents for the Planning Process include the following: Site Scientific Mission Plan, IOP Science Plan, the IOP Coordination Questionnaire, the Operations Plan, and the Data Policy Agreement. Requirements for each document are described below.

Site Scientific Mission Plan: The Site Scientific Mission Plan is the responsibility of the Site Scientist in collaboration with the Site Program Manager. The Site Scientific Mission Plan is updated every 6 months and is the operational planning document for site operations for the next 6-month period. Approved IOPs will be incorporated into the Site Scientific Mission Plan such that the 6-month operational planning process is fully integrated with all known measurement activity to be conducted at that site. The Site Scientific Mission also includes a look-ahead chapter or section that will include all IOP activity that has been approved or suggested to the Site Scientist for periods beyond the next 6 months.

IOP Science Plan: A Science Plan, nominally formatted in accordance with Appendix C, will be prepared by the IOP Lead Scientist for all IOPs that have research objectives. The plan should be submitted to the Chief Scientist with a copy to the appropriate Site Scientist and the ARM WWW administrator for placement on the IOP web site. Typically, the IOP Lead Scientist and/or the responsible Science Team Working Group will be responsible for pulling together all of the scientific considerations of an IOP. For IOPs driven purely by technical questions, completion of an abbreviated objectives document may be appropriate and largely reflective of what goes into the IOP Questionnaire.

The Science Plan will clearly delineate the reasons necessitating the IOP. Generally this will be a “hypothesis-based” rationale and will clearly show the necessity for the requested data acquisition effort, especially where non-routine, or visiting instruments requiring additional

support are required. Additionally, the Science Plan will describe the measurement methodology and operational requirements as well as post IOP data processing and what data will be sent to the ARM Archive through the External Data Center. The Science Plan should be relatively complete at least 9 months prior to the IOP.

The WWW-based "Executive Summary" document (see Section 2.3) for an IOP will capture significant, short elements of the Science Plan.

***IOP Questionnaire**:* Each participant will fill out and submit an IOP questionnaire (http://www.arm.gov/docs/iops.html) approximately 4 months in advance of the IOP. The questionnaire serves the purposes of notifying site operations of potential participation by a scientist and what his/her support requirements will be. In addition, it helps site operations coordinate all logistics/requirements for the IOP.

Operations Plan: The operations plan 1) may be very brief for limited efforts, 2) could be quite substantive where substantial coordination is required such as for aircraft operations or the use of hazardous devices, 3) will specify reporting requirements, and 4) will specify specific responsibilities during the IOPs. The operations plan will be drafted approximately 2 months prior to the IOP by site operations and the aircraft operations coordinator.

IOP Data Policy Agreement: If required, an IOP Data Policy will be prepared during the planning phase of the IOP. See Section 3 below for more details.

2.2.2 IOP Operations

Operation Reporting Process: Periodic reporting during an IOP by the IOP Lead Scientist is required. The IOP Operations Plan will specify the planned reporting procedure. It is important for IOP participants to consider the interests of other Science Team members in the progress of any given IOP and submit reports accordingly.

Required Documentation: In very active IOPs, daily reports may be appropriate; in others, only several reports per week may be necessary. The Lead Scientist will submit his report to the Site Program Manager for further distribution, and where appropriate, corrective action to ensure the resolution of any identified problems. This daily or periodic report may also be directed to a mail list. A copy of daily reports will also be sent to the ARM WWW administrator for transmission to the ARM community via the WWW. An alternative would be the establishment of an IOP web site wherein such daily reports are placed for community access. In this case, the Site Program Manager and ARM WWW administrator should be provided with the web site url, permitting a link to be established from the ARM IOP web page.

2.3 IOP Summary Reporting Process

The 3rd and final step in an IOP is the summary reporting process. This step is very important to the ARM Program in that it is the means by which ARM measures the success of its IOP activities. This process is described below.

Reporting Process: To close out an IOP, the IOP Lead Scientist is required to submit an "Executive Summary" report to the Site Program Manager within 14 days of the completion of the IOP. ARM management will use information in the Executive Summary to provide timely briefings to interested parties (politicians, collaborators, directors, etc.) on the IOP activity. Therefore, the summary is formatted to act as a stand-alone document.

Subsequently (within 6 months), the Lead Scientist will coordinate the efforts of the IOP participants to submit a more formal and complete report that will be placed on the ARM web site for general access. This report will address data quality and availability.

Required Documentation: The documentation requirements for this phase include an Executive Summary report and a final report with data information.

IOP "Executive Summary" Report: The Executive Summary is a two-part, WWW-based report that the IOP Lead Scientist completes. Part One should be completed as soon as the Science Plan is drafted. Part Two will be completed within 14 days after the IOP. Exceptions to the 14-day requirement are acceptable but require a written estimate in Part II of the Executive Summary as to when the information will be available.

The "Executive Summary" online submittal form is located at (http://www.arm.gov/docs/iops/iopsumform.html).

Final Report and Data Information: The final report for the IOP will be submitted within 6 months of the IOP to the Chief Scientist with a copy to the ARM WWW administrator for placement on the ARM web site. The data will be formatted and delivered as described in Section 3 and provided to the ARM Archive through the External Data Center. It then will be accumulated and made available either as a singular data set containing all data from that IOP or as individual data sets for each data source. In some cases, the final report and data may be placed on a CD-ROM for distribution.

3 Data

The data acquired is the product of an IOP. It may have wide or narrow interest, but it must be of sufficient quality to be useful and must be documented such that users of archived data files will be able to understand the precise quality and usefulness of the data.

The data policy for any specific IOP will be governed by the general ARM Data Policy if appropriate. A specific data policy may be developed to address the conditions or external participation of large IOPs and campaigns. This is particularly true in the case in internal collaborative efforts not fully under ARM's control. Contact information can be found in Appendix B.

3.1 General guidelines for IOP data:

1. ARM sponsored data will be released in the general spirit of the basic tenets of the ARM Program:

    - Free and open access.

    - Immediate processing and sharing by Principal Investigators in the field if at all possible.

    - Timely release to ARM Science Team and general scientific community through ARM data system.

2. Collaborating programs are encouraged to follow the ARM data protocols of timely release and free and open sharing.

3. All data to be submitted to the ARM data system will be accompanied by full documentation in accordance with the Data Management and Documentation Plan.

4. Planning for IOPs and campaigns will include specific plans for data reduction, evaluation and publication.

3.2 Detailed Considerations for Data Processing and Handling

1. All IOP and campaign participants will have early access to all data acquired. Direct transfer of preliminary data in the field may be necessary, but to the extent possible, ARM will arrange common electronic sharing mechanisms. Preliminary data are defined as not quality controlled or documented by the investigator and should not be considered publishable without coordination with the responsible investigator.

2. ARM data are available to all participants on a free and open basis and are publishable upon receipt with acknowledgment of ARM as the source.

3. Data originating from ARM funded sources during IOPs will be quality assured and released to the ARM Archive through the External Data Center as soon as possible after collection, but no later than 90 days from the date of completion of the IOP or campaign. When released to the External Data Center, data are considered publishable, but users are cautioned to confirm data version with the originator prior to publication.

4. For data originating from non-ARM funded sources it is desirable for that data to be quality assured and released to the ARM Archive through the External Data Center within 4 months from the completion of the IOP or campaign, if possible, but not later than 6 months. At the time data are transmitted to the External Data Center, they are considered publishable, but users are cautioned to confirm data version with the originator prior to publication. The web site IOP/Campaign summary will list points of contact.

5. The ARM External Data Center and Archive will track data versions and ensure latest data versions are made available to data recipients.

6. IOP and campaign participants may release their own preliminary data to whomever they wish and the preliminary data of other investigators with consent from the data's originator.

7. All data sets acquired during an IOP or campaign will be made available to the ARM External Data Center for dissemination to users and forwarding to the ARM Archive.

8. Non-participants in an IOP or campaign who wish to use the IOP or campaign data set are encouraged to enlist the collaboration of a participant in the field activity.

4 ARM Acknowledgement in IOP Publications

The ARM Program should be acknowledged in publications as the programmatic origin of the field program.

ARM-funded investigators will use the following acknowledgment: "This research was supported by the Office of Biological and Environment Research of the U.S. Department of Energy (under grant or contract number - if you want or need to include it) as part of the Atmospheric Radiation Measurement Program." ARM collaborators are encouraged to appropriately acknowledge the cooperation or collaboration of the "U.S. Department of Energy as part of the Atmospheric Radiation Measurement Program."

Additionally, the ARM Chief Scientist must be notified of any articles submitted for publication as a result of the IOP.

Appendix A
Roles and Responsibilities

Proposer: *The proposer prepares and submits the initial IOP proposal. He/she works with infrastructure planners to develop necessary documentation and/or to produce an IOP proposal that integrates several proposed efforts into singular integrated IOP efforts for review and consideration by management.*

Science Team Working Groups: *The Science Team Working Groups are the ARM Program's resident groups of experts in given areas of emphasis. Working Groups represent the direct interests of the Science Team, embody the necessary infrastructure participants and are expected to be the origin for many of the most significant IOPs that are proposed. The Working Groups may receive initial IOP proposals for review and/or for development into final proposals.*

Site Scientist: *The Site Scientist is the key element in integrating IOP activity proposed for a given site. Several IOPs may be integrated together in the course of preparing the Site Scientific Mission Plan. The Site Scientist may recognize the possibility to satisfy the needs of lower priority efforts in the course of pursuing higher priority efforts. The Site Scientist will be expected to make these possibilities known either in the preparation of the final proposal for an IOP or in the preparation of the Site Scientific Mission Plan.*

Site Program Manager/Site Operations Team Leader: *The Site Program Manager is the coordinator of the IOP. He has responsibility for integrating the support requirements indicated in each of the submitted IOP questionnaires into an IOP operations plan and for coordinating site operations for the IOP. During the IOP, Site Operations will be responsible for assuring safe operations and will have the final decision authority for scheduling and daily plans where safety is a concern.*

Science Applications Group (SAG) (function will move to new structure in reorganization): *The Science Application Group is part of the Data and Science Integration Team (DSIT). The primary roles of the SAG generally address how well the infrastructure is meeting the data needs of the Science Team, the development of value added products (VAPs), and the coordination of the scientific objectives of IOPs. VAPs are algorithms for producing a desired calculated data set from observed data and can be variable of primary scientific importance or serve diagnostic purposes for either instruments or models. The scope necessitates close cooperation with Site Scientists, Science Team members, Science Team Working Groups, instrument mentors, and coordination points of contact for cooperating or collaborating programs outside of ARM. The SAG will be the primary coordination point for the development of Final IOP proposals.*

ARM Chief Scientist: *The ARM Chief Scientist has the overall role of oversight over the scientific objectives of the IOPs, judging the relevance of initial IOP proposal, working with the Science Team Working Groups to develop IOP concepts that have the greatest benefit to the ARM Program. The Chief Scientist is one of the key points of contact for individuals to cursorily explore an IOP idea.*

ARM Technical Director: *The Technical Director has the overall responsibility to ensure that all IOP activity is fully coordinated, to identify and arrange for all participants, and to ensure that all plans and documents are completed and submitted as appropriate. With the approval of the Chief Scientist, the Technical Director may act as the final approval point for technically directed IOP activities, such as instrument comparisons, instrument evaluations or diagnostic efforts aimed at understanding measurement techniques and procedures.*

Science Team Executive Committee (STEC): *The STEC is the Chief Scientist's primary tool for reviewing and assessing the scientific importance of any given IOP proposal to the interests of ARM. The STEC will review and advise the Chief Scientist on the basis of final IOP proposals. The STEC may also serve as a source of ideas for IOP concepts that may be especially beneficial to ARM, but which do not seem to be progressing on their own.*

ARM Management Team (AMT)/Infrastructure Management Team (IMT) (under new structure): *The AMT is the Technical Director's primary tool for coordinating IOP activity and assessing the necessity for and availability of resources to conduct the IOP. The AMT will review and advise on the technical soundness of all proposed and planned IOPs, identifying and solving technical issues that may be anticipated in preparing for or conducting the IOP. The AMT may be a source for IOP concepts that may be necessary to assure the technical soundness of ARM instruments, data ingest or data processing.*

IOP Lead Scientist: *An IOP Lead Scientist may be appointed for any given IOP; typically large or complex IOPs or those involving a variety of resources can be anticipated to have an appointed IOP Lead Scientist. Technical and smaller science driven IOPs may not have this as a formal role. The IOP Lead Scientist may play a large role in developing the final IOP proposal and preparing for the IOP. At a minimum, the IOP Lead Scientist will be responsible for coordinating scientific activity during the IOP, setting schedules and making final decisions on the use of resources. In collaboration with Site Operations, the IOP Lead Scientist will determine safety issues and/or constraints of planned activity. Site Operations will have the final decision where safety is a concern. The IOP Lead Scientist will be responsible for the Science Plan, the periodic reports during the IOP, the IOP Executive Summary, the IOP final report, and the submission of data to the Archive through the External Data Center. If considered advisable, periodic (e.g., daily) IOP meetings will be directed by the IOP Lead Scientist.*

IOP Participants: *IOP participants obviously have responsibility for their own scientific effort. Successful participation is dependent upon the completeness of the IOP questionnaire that each participant completes and submits. Each participant should confirm with the Site Program Manager about 60 days prior to the IOP that all anticipated support will be available. Normal coordination procedures should ensure this, but the "safety check" is well advised. In the field, each participant will have responsibility to either report activity periodically to the SPM and other IOP participants, or will make such reports to the IOP Chief Scientist for integration into a larger report. Each participant will be responsible for contributing to the IOP final report and to make certain that data is quality assured, documented and submitted in accordance with procedures below.*

Appendix B
IOP Contacts

Contacts	Name	Phone Number	Email Address
ARM Chief Scientist	Thomas Ackerman	(509) 372-6032	tom.ackerman@arm.gov
ARM Technical Director	Ted Cress	(509) 375-6964	ted.cress@arm.gov
Operations Manager	Doug Sisterson	(630) 252-5836	doug.sisterson@arm.gov
SGP Site Manager	Doug Sisterson	(630) 252-5836	doug.sisterson@arm.gov
TWP Site Manager	Bill Clements	(505) 667-1186	bill.clements@arm.gov
NSA Site Manager	Bernie Zak	(505) 845-8631	bernie.zak@arm.gov
External Data Center	Rick Wagener	(516) 344-5886	rick.wagener@arm.gov
ARM WWW Administrator	Nancy Stratton	(509) 372-4172	nancy.stratton@arm.gov

URL Addresses

Main IOP Page: http://www.arm.gov/docs/iops.html
IOP Questionnaires: http://www.arm.gov/iops/iop_form.html
IOP "Executive Summaries": http://www.arm.gov/docs/iops/iopsumform.html
External Data Center: http://www.xdc.arm.gov/index.html

Appendix C
Science Plan Outline

Note: This is a nominal outline to assist the writer of an IOP Science Plan. End products may depart significantly from this format depending upon the specific IOP and its complexity.

Background (Give the history and state of science driving the need for the proposed IOP.)

Scientific Requirement (Provide a clear statement and discussion of the scientific hypothesis that the IOP will address.)

Experimental Approach (This will include items such as observational requirements and what instruments and instrument platforms [e.g., aircraft] will be used.)

Special Issues Affecting the Implementation (Include items such as calibration considerations, observational time resolution, need for data availability during the IOP, etc.)

Proposed Timeline for IOP (When should IOP be conducted?)

Proposed Participation in IOP (For example, if additional instruments are required, who is proposed to provide that capability?)

Anticipated Data Processing and Delivery (What data will go to the ARM Archive?)

Appendix D
Executive Summary Outline

(Online Address: http://www.arm.gov/docs/iops/iopsumform.html)

Name of IOP:

Date of IOP/Campaign:

IOP Chief Scientist:

Part 1

1. **Scientific Hypothesis:**

2. **Approach to Test Hypothesis:**

3. **Instrumentation Requirements: (including site and/or guest instrumentation)**

Part 2

1. **Activity Summary for the IOP:**

2. **Data Samples and/or Availability: (please include URLs)**

3. **Other Points of Contact: (e.g., data availability)**

Appendix E
IOP Check List

Date Completed	Required Documentation	Recommended Completion Date	Responsible Party
	Initial Proposal	12 to 24 months in advance of the IOP	Proposer
	Site Mission Plan	As soon as IOP is defined	Site Program Manager
	Final Proposal	12 months in advance of IOP	Proposer/Working Groups
	Approval Document	6 - 12 months in advance of IOP	Technical Director
	IOP Science Plan	9 months in advance of IOP	Principal Investigator
	Executive Summary - Part 1	3 months in advance (after science plan is complete)	Principal Investigator
	IOP Questionnaire	4 - 6 months in advance of IOP (earlier is better)	All Participants
	Operations Plan	2 - 4 months in advance of IOP	Site Operations
	Status Reports	Periodically during IOP	Principal Investigator
	Executive Summary - Part 2	14 days after IOP	Principal Investigator
	Detailed Summary and Data Report	6 months after IOP	Principal Investigator